

Notice of Allowability

Application No.

09/816,940

Applicant(s)

HERMANN ET AL.

Examiner

Doug Hutton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed on 03/15/2006.
2. ☒ The allowed claim(s) is/are 1,2,4 and 6-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____



Doug Hutton
Primary Examiner
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EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Tom Ryan on 04/12/2006.

The application has been amended as follows:

In the Claims:

- replace the claims with the following listing of claims:

1. (currently amended) A method carried out by a status engine for monitoring services of an information technology (IT) environment, comprising:

storing a representation of a service hierarchy, the stored representation comprising service elements representing the services of the IT environment, wherein each of the service elements has an associated ~~service~~ status, the service hierarchy comprising superordinate and subordinate service elements, ~~wherein the status of a superordinate service element depends on at least one of the statuses of one or more subordinate service elements;~~

calculating the status of a superordinate service element according to one or more rules,

wherein the calculation is based on at least i) a status of the superordinate service received in a message from the IT environment and ii) an independently received status of the at least one subordinate service element depends on messages affecting the superordinate service element received from the IT environment, the status of at least one subordinate service element that is independently received from the messages, and additional attributes of the superordinate service element and/or the subordinate service elements, and

wherein the rules define the dependency of the status of the superordinate service element on at least one of the statuses of the at least one or more subordinate service elements and the a propagation of the one or more statuses from the at least one or more subordinate service elements element to the superordinate service element, the rules comprising at least one of:

- a rule that is based on additional attributes, other than the statuses, of the superordinate service element and/or the at least one subordinate service elements other than the status;
- a rule that ignores one or more of the subordinate service elements;

- a rule that is defined by a user on the basis of ~~at least one of i)~~ logical and/or ii) arithmetical operations of the ~~status~~ statuses or ~~said~~ attributes of the at least one subordinate services elements; and
- a rule that is programmed individually by ~~[[a]]~~ the user; and

displaying monitoring results to the user.

2. (currently amended) The method of claim 1, wherein the rules, when the status of the ~~at least one~~ superordinate service element is calculated, include:

status propagation rules that each have as an input only one parameter, wherein the parameter is ~~the~~ a status of the at least one subordinate service element, and

status calculation rules that have as an input one or more parameters selected from the group consisting of: the propagated status of the at least one subordinate service elements element, messages coming from services of the IT environment, and the additional attributes of the superordinate service element and/or the subordinate service elements.

3. (cancelled)

4. (currently amended) The method of claim 1, wherein the additional attributes of the superordinate service element and/or the subordinate service elements can take values that are different from possible values of the status(es) of the ~~service elements~~ superordinate service element and/or the subordinate service elements.

5. (cancelled)

6. (currently amended) The method of claim 1, wherein specific subordinate service elements of the at least one subordinate service element are individually treated for the calculation of the status of the ~~at least one~~ superordinate service element.

7. (original) The method of claim 1, wherein user-specific external data is included in the rules.

8. (original) The method of claim 1, wherein time of day information is included in the rules.

9. (currently amended) A computer system for monitoring services of an information technology (IT) environment, wherein the computer system monitors the services based on a service hierarchy, wherein a stored representation of the service hierarchy includes service elements representing the services of the IT environment, wherein ~~and~~ each of the service elements having has an associated ~~service~~ status, wherein the service

elements include at least one superordinate service element and at least one subordinate service element, ~~wherein a status of the at least one superordinate service element depends on a status of the at least one subordinate service element~~, the system comprising:

a status engine for calculating the status of at least one of the service elements according to one or more rules, ~~wherein the calculation is based on at least i) a status of the superordinate service received in a message from the IT environment and ii) an independently received status of the at least one subordinate service element~~, and, ~~according to one or more rules~~;

wherein the calculation depends on messages affecting the at least one service element received from the IT environment, the status of at least one service element that is independently received from the messages, and additional attributes of the superordinate service elements and/or the subordinate service elements;

a user interface for configuring the rules; and

a graphical display for visualizing the monitoring results,

wherein the rules define the a dependency of the status of the at least one superordinate service element on the status of the at least one subordinate service

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element and a propagation of the status from the at least one subordinate service element to the at least one superordinate service element, and

wherein the rules include at least one of:

- a) a rule that is based on additional attributes, other than the status, of at least one of the service elements ~~other than the status~~;
- b) a rule that ignores the at least one subordinate services element;
- c) a rule that is defined by a user on the basis of ~~at least one of i)~~ logical and/or ii) arithmetical operations of the status or the additional attributes of the at least one subordinate services element; and
- d) a rule that is programmed individually by ~~[[a]]~~ the user.

10. (currently amended) The computer system of claim 9, wherein the user interface for configuring the rules is a graphical user interface.

11. (currently amended) The computer system of claim 9, wherein the user interface for configuring the rules is an application programming interface to other programming languages.

12. (currently amended) The computer system of claim 9, wherein the user interface for configuring the rules is a script programming language of which a syntax is provided by the status engine.

13. (previously presented) The computer system of claim 9, wherein the status engine is capable of handling a graph structure of the IT network of services in which each of the services can have one or more depending services and one or more services on which each of the services depends.

14. (original) The computer system of claim 9, wherein the dependencies between the services of the IT environment are visualized as a graphical representation.

15. (currently amended) The computer system of claim 14, wherein the statuses and status changes of the service elements are visualized in a graphical representation.

16. (currently amended) A computer program product including program code tangibly embodied on a computer readable medium which, when executed on a computer system, ~~for carrying out, by~~ causes a status engine, ~~a method for monitoring to monitor~~ services within an information technology (IT) environment, the monitoring comprising:

~~wherein the method includes~~ storing a representation of a service hierarchy,
wherein the stored representation includes service elements representing the services

of the IT environment, wherein and each of the service elements having has an associated service status, wherein the service hierarchy includes at least one superordinate service element and at least on subordinate service element, and ~~wherein a status of the at least one superordinate service element depends on a status of the at least one subordinate service element,~~

~~wherein the method includes calculating the status of the at least one superordinate service element according to one or more rules, wherein the calculation is based on at least i) a status of the superordinate service received in a message from the IT environment and ii) an independently received status of the at least one subordinate service element,~~

wherein the calculation depends on messages affecting the at least one superordinate service element received from the IT environment, the status of the at least one subordinate service element that is independently received from the messages, and additional attributes of the at least one superordinate service element and/or the at least one subordinate service elements;

wherein the rules define the dependency of the status of the at least one superordinate service element on the status of the at least one subordinate service element and a propagation of the status from the at least one subordinate service element to the at least one superordinate service element, and

wherein the rules include at least one of:

- a) a rule that is based on additional attributes, other than the status, of at least one of the service elements ~~other than the status~~;
- b) a rule that ignores the at least one subordinate services element;
- c) a rule that is defined by a user on the basis of ~~at least one of i)~~ logical and/or ii) arithmetical operations of the status or the additional attributes of the at least one subordinate services element; and
- d) a rule that is programmed individually by ~~[[a]]~~ the user; and

displaying monitoring results to the user.

17. (currently amended) The computer program product of claim 16, ~~wherein the program code provides~~ further comprising providing an interface to the user for configuring the rules.

18. (previously presented) The computer program product of claim 17, wherein the interface for configuring the rules is a graphical user interface.

19. (previously presented) The computer program product of claim 17, wherein the interface for configuring the rules is an application programming interface to other programming languages.

20. (previously presented) The computer program product of claim 17, wherein the interface for configuring the rules is a script programming language of which syntax is provided by the status engine.

21. (currently amended) The method of claim 1, wherein the status of at least one of the service elements further depends on one or more messages coming from the services of the IT environment and affecting the status of the at least one of the service elements and wherein the rules further define the dependency of the status of the at least one of the service elements of the one or more messages.

22. (currently amended) The computer system of claim 9, wherein the status of at least one of the service elements further depends on one or more messages coming from the services of the IT environment and affecting the status of the at least one of the service elements and wherein the rules further define the dependency of the status of the at least one of the service elements of the one or more messages.

23. (currently amended) The computer program of claim 16, wherein the status of at least one of the service elements further depends on one or more messages coming

from the services of the IT environment and affecting the status of the at least one of the service elements and wherein the rules further define the dependency of the status of the at least one of the service elements of the one or more messages.

Allowable Subject Matter

Claims 1, 2, 4 and 6-23 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 1, 9 and 16:

The closest prior art is Stone, Brad et al., **UNIX Fault Management: A Guide for System Administration**, (Prentice Hall PTR, ©1999). Stone discloses monitoring network services comprising correlation tools for use in clustered environments. The monitoring network services include multiple nodes of the managed enterprise that note the failure of a shared disc device and send "critical event" error messages to the enterprise management station. When this happens, the event correlation tool operates to intelligently filter and consolidate the messages. Thus, the network administration system comprises the relationships of the network components and the rules for reporting errors and correlating the error messages.

Stone also discloses the Seagate NerveCenter enterprise management product - hereinafter, Seagate - that uses rules-based filtering and advanced correlation to

pinpoint root causes of critical network issues. Seagate uses behavioral models to define the relationships between critical conditions and specific corrective actions.

Seagate also includes models for monitoring network traffic, performance, status, security and error conditions of the components within the enterprise. Finally, Seagate correlates across network devices, UNIX systems and NT systems using a distributed management model. In performing these functions, Seagate stores a "representation" of a "service hierarchy," and these models define the hierarchical relationships between the components of the enterprise - i.e., the "superordinate" services and the "subordinate" services.

The status of any "superordinate" service within the service model will depend upon the statuses of "subordinate" services and the propagation of data from those "subordinate" services in that a problem occurring at a "subordinate" service will affect a "superordinate" service. Thus, any "calculation" of the "status" of a "superordinate" service will include consideration of the "status dependency" and "propagation" between the associated services. Stated differently, the status of a "superordinate" service depends upon the statuses of any "subordinate" services on which the "superordinate" service relies, and rules for determining the dependent status of the "superordinate" service will depend upon and consider the statuses of the "subordinate" services.

However, the prior art fails to disclose or suggest the combination of the recited limitations of Claims 1, 9 and 16. More specifically, the prior art fails to disclose or

suggest calculating the status of a superordinate service element, wherein the calculation depends on:

- messages affecting the superordinate service element received from the IT environment;
- the status of at least one subordinate service element that is independently received from the messages; and
- additional attributes of the superordinate service element and/or the subordinate service elements.

Accordingly, Claims 1, 9 and 16 are allowed.

Claims 2, 4, 6-8, 10-15 and 17-23:

These claims are dependent upon Claims 1, 9 and 16 and are thus allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Doug Hutton whose telephone number is 571-272-4137. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Herndon, can be reached at (571) 272-4136. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

WDH
April 12, 2006

A handwritten signature in black ink, appearing to read 'D. Hutton', with a stylized flourish at the end.

**DOUG HUTTON
PRIMARY EXAMINER
TECH CENTER 2100**